



## Delta State University

Division of Biological and Physical Sciences

### Project Summary:

#### Habitat Use by Marbled Salamanders at Dahomey National Wildlife Refuge

Submitted to the United States Department of the Interior, Fish and Wildlife Service,  
North Mississippi Refuges Complex, Grenada, Mississippi

By Jeffrey P. Duguay, Delta State University

Declines of amphibian populations have been documented throughout the new world due to various causes, with habitat destruction being of primary importance. In order to properly manage for any species, an understanding of its habitat requirements is essential. Beginning in September 2004, areas of Dahomey NWR, located in west-central Bolivar County, Mississippi, were searched for marbled salamanders (*Ambystoma opacum*). Once a salamander was located, micro-habitat variables were measured at each capture site and at a corresponding random site located between 10m and 30m from each capture site. At each site, percent cover was visually estimated within a 1m<sup>2</sup> plot. Cover variables consisted of leaf litter, bare ground, log cover, herbaceous and deciduous cover. Percent canopy cover was estimated using a densiometer. Leaf litter depth was recorded within each of the four corners of the 1m<sup>2</sup> plot and number of woody stems within the plot were counted. The number of logs and the diameter of each was recorded within a 5-m radius plot centered on each capture and random site. The number, DBH, and species of trees  $\geq 5$ cm DBH were recorded within the 5-m radius plot and all trees  $< 5$ cm DBH were tallied.

A multivariate analysis of variance was used to examine preliminary data from 17 salamander capture and random sites. Habitat variables differed between capture and random sites ( $P = 0.0276$ ), with salamanders occupying sites with a greater percent of logs within the 1m<sup>2</sup> plot. Within the 5m radius surrounding capture sites there was a greater number of decaying logs, greater number of total logs, and trees with a larger DBH than at random sites. Random sites had a greater percent leaf litter cover than did capture sites and more small trees within the 5m radius.

These preliminary data suggest that within a forest of older structure that salamanders are selecting sites with specific microhabitat variables. Additional data will be collected during the fall of 2005 to further investigate microhabitat use. Preliminary data from this research was presented at the Association of Southeastern Biologists meeting, April 2005, by undergraduate student workers Jonathan Elliott and Janean Winters and Dr. Jeff Duguay. Information from this research also was presented at the Mississippi chapter of The Wildlife Society meeting in October 2005 by Dr. Jeff Duguay.